

PUBLIC HEALTH FACT SHEET

Lyme Disease

Massachusetts Department of Public Health, 305 South Street, Jamaica Plain, MA 02130

What is Lyme disease?

Lyme disease is caused by bacteria that are spread by tiny infected ticks (in Massachusetts, by deer ticks). Both people and animals can be infected with Lyme disease.

Where is Lyme disease found?

Lyme disease is most commonly found along the East Coast, the upper Midwest and the valleys of the far West. In Massachusetts, deer ticks are found everywhere, but especially in coastal areas, the islands and the Connecticut River Valley. The disease is most likely to be spread between late May and early autumn, when ticks are most active.

How is Lyme disease spread?

Deer ticks cling to plants near the ground in brushy, wooded, or grassy places. The ticks, which cannot jump or fly, climb onto animals and people who brush against the plants. Very young ticks, called larvae, which are no bigger than the period at the end of a sentence, pick up the bacteria that cause Lyme disease by biting infected animals, such as field mice. Slightly older ticks, called nymphs, which are the size of a poppy seed, are the stage most likely to bite and infect humans. Adult deer ticks can also transmit the disease, but they are not as great a risk as nymphs because the adults are less likely to bite humans and they are easier to see and remove.

Ticks live for 2 years and can infect wild and domestic animals as well as people. Not all ticks carry Lyme disease, and even being bitten by a deer tick does not mean that you will always get the disease. The tick must usually be attached for at least 24 hours to pass on the bacteria, so removing the tick promptly will greatly decrease your chances of being infected.

What are the symptoms of Lyme disease?

Early stage (days to weeks): An early symptom of Lyme disease is usually, but not always, a rash where the tick was attached. The rash appears from 3 days to a month after the bite. It often starts as a small red area then spreads, clearing up in the center so it looks like a donut. However, the rash may not always appear like this. Flu-like symptoms, such as fever, headache, stiff neck, sore and aching muscles and joints, fatigue and swollen glands, are also common in the early stages of Lyme disease.

These early symptoms often go away by themselves after a few weeks, but the person may remain infected. Without medical treatment, about half the infected people will get the rash again in other places on their bodies, and many will experience more serious problems. Early treatment with antibiotics clears up the rash within days and usually prevents later problems.

Later stages (months to years): Three major organ systems--the joints, nervous system and heart--can be affected. People with Lyme disease can develop late-stage symptoms even if they never had the donut-shaped rash. About 60% of people with untreated Lyme disease get arthritis in their large joints, usually knees, elbows and wrists. The arthritis can move from joint to joint and become chronic. About 10 to 20% of people who don't get treatment develop nervous system problems. The most common problems include meningitis (an inflammation of the membranes covering the brain and spinal cord), facial weakness (Bell's palsy) or other problems with nerves of the head, and weakness or pain (or both) in the hands, arms, feet and/or legs. These symptoms can last for months, often shifting between mild and severe. The heart beat also can be affected in Lyme disease, with slowing down of the heart rate and fainting. The effect on the heart can be early or late.

How is Lyme disease diagnosed?

Lyme disease can be fairly easy to diagnose when someone gets the classic rash. It is much harder to diagnose without the rash because its other symptoms resemble other diseases, like flu. To help diagnose these cases, doctors can have patients' blood tested for antibodies to the Lyme disease bacteria.

How is Lyme disease treated?

Prompt treatment of early symptoms with certain antibiotics can prevent later, more serious problems.

Treatment of Lyme disease in its later stages has not been standardized.

How can you prevent Lyme disease?

- The only known way to get Lyme disease is from the bite of an infected deer tick. The best way to prevent Lyme disease is to avoid areas where the deer ticks are likely to be found. If you live in or visit a high-risk area, you should follow these precautions:
- Wear a long-sleeved shirt and long pants, and tuck your pant legs tightly into your socks. (Light colors will help you spot the ticks on your clothes before they reach your skin.) Stay to the middle of paths.
- Use repellents containing DEET (N, N-diethyl-m-toluamide) and choose a product that will provide sufficient protection for the amount of time spent outdoors. Product labels often indicate the length of time that someone can expect protection from a product. DEET is considered safe when used according to the manufacturer's directions. Products containing DEET should not be used on children less than 2 months of age and should be used in concentrations of 30% or lower for older children and adults. Mosquito netting may be used to cover infant carriers or to protect other areas for children less than 2 months of age.
 - ⇒ Avoid using DEET products that combine the repellent with a sunscreen. Sunscreens may need to be reapplied too often, resulting in an over application of DEET.
 - ⇒ Apply DEET on exposed skin, using only as much as needed.
 - ⇒ Do not use DEET on the hands of young children and avoid applying repellent to areas around the eyes and mouth.
 - ⇒ Do not use DEET over cuts, wounds or irritated skin.
 - ⇒ Wash treated skin with soap and water after returning indoors and wash treated clothing.
 - ⇒ Avoid spraying DEET products in enclosed areas.
- The insecticide permethrin can also be used to protect against ticks. In order to work well, this chemical can only be used on clothing.
- Check for ticks every day. Their favorite places are on the legs, in the groin, in the armpits, along the hairline, and in or behind the ears. The ticks are tiny, so look for new "freckles."
- Remove any ticks promptly using fine point tweezers. The tick should not be squeezed or twisted, grasp it close to the skin and pull straight out with steady pressure.
- Know the symptoms of Lyme disease. **If you have been someplace likely to have ticks between May and early autumn and you develop Lyme disease symptoms, especially if you get a rash, see a doctor right away.**

Is there a vaccine for Lyme disease?

LYMERix™, a vaccine for Lyme disease approved in 1998 by the Food and Drug Administration (FDA), was removed from the market by the manufacturer in February 2002. The company stated that sales of the vaccine were poor. There are no other Lyme disease vaccines approved for use in humans.

Where can you get more information?

- Your doctor, nurse or clinic
- Your local board of health (listed in the phone book under local government)
- The Massachusetts Department of Public Health, Division of Epidemiology and Immunization at (617) 983-6800 or toll-free at 1-888-658-2850 or on the MDPH Website at <http://www.mass.gov/dph>
- Massachusetts Poison Control Center (concerning adverse reactions to insect repellents) (617) 232-2120 (Boston) or 1-800-682-9211 (other areas in Massachusetts) or 1-888-244-5313 (hearing impaired).